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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,461	06/30/2003	Steve Longerbeam	8437.2002	1635

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EXAMINER

PATEL, KAUSHIKKUMAR M

ART UNIT PAPER NUMBER

2188

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/611,461

Applicant(s)

LONGERBEAM ET AL.

Examiner

Kaushikkumar Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 10, 13 and 14 are objected to because of the following informalities:

Claim 10, page 25, line 2, "flat" should be, "flag".

Claim 13, page 26, line 1, "flay" should be, "flag".

Claim 14, page 26, line 1, "a method for protect" should be, "a method for protecting".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harish et al. (5,940,850) and further in view of Mark Sullivan, Michael Stonebraker (herein after Sullivan) (Using Write Protected Data Structures to improve Software fault tolerance in highly available database management systems) and Berny Goodheart and James Cox (herein after Goodheart) (The Magic Garden Explained, published 1994 by Prentice Hall of Australia Pty Ltd.).

As per claim 1, Harish teaches a computing system comprising (fig. 1):

at least one random access memory (RAM) (fig. 1, item 106), the RAM having a storage location containing file system data with associated page table entries (fig. 2, item 202), each page table entry having a read/write flag for file system data, the file system data being initially mapped for read-only access (column 4, lines 15-16); and

Harish fails to teach remapping the file system data for write access by modifying the read/write flag of the page table entries, to perform a write operation on the file system data during write access, and remap file system data back to read-only access by modifying page table entries. Sullivan teaches that data structures are guarded (write protect) initially (page 172, column 1, lines 13-16). Sullivan teaches, when DBMS needs to update the data, the system unprotect (change flag to write) the page containing the record and reprotect the record after it is updated (change flag to read-only) (page 172, column 1, lines 28-30). Sullivan teaches that the guard and unguard system calls changes the software page table entries (page 173, column 1, lines 52-55).

It would have been obvious to one having ordinary skill in the art at the time of invention to modify the system of Harish with page table entries with the teachings of Sullivan to protect the file system by unprotecting (changing from write-protect to write enable) the protected (write-protected) data for write access and reprotecting (changing back to write-protect) after modification of data from accidental updates by incorrect software (page 172, column 1, lines 18-20).

As per claim 2, Sullivan teaches about Unix operating system (page 173, column 1, lines 13-15) and mounting a file system is inherent feature of Unix file system in order

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to be able to access the file system (Goodheart teaches more details of the Unix operating system and file system, page 30, section 2.4.2).

As per claims 3 and 4, Sullivan teaches that, the guard and unguard system calls changes the page table entries (page 173, column 1, lines 52-55).

As per claim 5, Sullivan teaches Unix-based operating system (page 173, column 1, lines 13-15) and Linux is a Unix like system (see specification page 9, paragraph [031]).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harish et al. (5,940,850), Sullivan and Goodheart as applied to claims 1-5 above, and further in view of Marshall Kirk McKusick, Michael J. Karels and Keith Bostic (herein after Mckusick) (A Pageable Memory Based Filesystem, Published March 21, 2003, <http://docs.freebsd.org/44doc/papers/memfs.pdf>)

As per claim 6, Harish, Sullivan and Goodheart teaches protected filesystem by modifying a page table entry from read-only to read-write and back to read-only as applied to claim 1. But Harish, Sullivan and Goodheart fails to teach filesystem mounted

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in RAM. McKusick teaches the RAM based file system that can be mounted using mount system calls (page 1, section 1, paragraph 2 and page 3, paragraph 1)

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the protected file system of Harish, Sullivan and Goodheart and mounted the filesystem on RAM as taught by McKusick to reduce the access latency and eliminate the use of caching (see page 1, section 1, paragraph 2).

As per claim 7, Goodheart teaches the use of superblock, inode table and data block sections (page 50, figure 2.6).

Claims 8-10 are rejected by same rationale applied to claims 3-5 above.

As per claim 11, Harish, Sullivan, Goodheart and McKusick teach the protected RAM file system as applied to claim 6. Sullivan teaches protection function (taught as code implementing user-defined operators, access methods and data types can be added. Page 173, column 1, lines 1-3).

As per claim 12, Harish teaches page table entries are set to read-only. (column 4, lines 15-16).

As per claim 13, Sullivan teaches that protected record (initially mapped to write-protect) is unprotected (modified to write-enable) updated and reprotected (set flag back to read-only mode). (page 173, column 1, lines 28-30).

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harish et al. (5,940,850), Sullivan and Goodheart and Marshall Kirk McKusick, Michael J. Karels and Keith Bostic (herein after McKusick) as applied to claims 6-13 above and further in view of Temple (5,937,199).

As per claims 14 and 21, Harish, Sullivan and McKusick teach the protected RAM file system as applied to claim 6. Harish, Sullivan and McKusick fail to teach, enabling and disabling of interrupts. Temple teaches interrupt enabling and disabling system (column 3, lines 28-33).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the protected RAM file system of Harish, Sullivan and McKusick and disabled and enabled the interrupts as taught by Temple, because in multiprocessor systems simultaneous access to a resource by the other processor (file system data being in write-enabled mode) can corrupt the data which is being used for writing (column 1, lines 38-46). So disabling the interrupt and locking a shared resource prohibits other processor from accessing the same data and enabling the interrupt back allows the other processor access to the data.

Claims 15-17 and 19-21 are rejected as same rationale applied to claims 9, 12 and 13.

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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaushikkumar Patel whose telephone number is 571-272-5536. The examiner can normally be reached on 8.00 am - 4.30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kaushikkumar Patel  
Examiner  
Art Unit 2188

  
kmp

Kevin L. Ellis  
Primary Examiner

